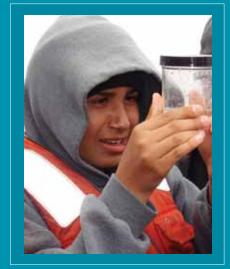




EDUCATION STRATEGIC PLAN 2010-2020



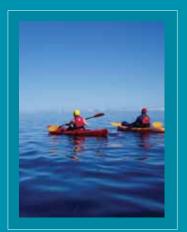












EDUCATION VISION

An ocean-literate public making informed environmental decisions.

EDUCATION MISSION

To inspire ocean and climate literacy and conservation through national marine sanctuaries.

STATUTES FOR NATIONAL MARINE SANCTUARY EDUCATION

- America COMPETES Act (P.L. 110-69)
- National Marine Sanctuaries Act (P.L. 106-513, Sections 1431 et seq.)
- Engineering in K-12 Education: Understanding the Status and Improving the Prospects

SUPPORTING DIRECTIVES FOR NATIONAL MARINE SANCTUARY EDUCATION

- NOAA's Education Strategic Plan (2009)
- NOAA's 2009-2014 Strategic Plan (2008)
- The Intergovernmental Panel on Climate Change Report: Mitigation of Climate Change (2007)
- Report of the Academic Competitiveness Council (2007)
- Conference on Ocean Literacy Report (2006)
- The President's U.S. Ocean Action Plan (2005)
- National Academies Report: Rising Above the Gathering Storm (2005)
- The U.S. Commission on Ocean Policy, An Ocean Blueprint for the 21st Century (2004)
- Discovering Earth's Final Frontier: A U.S. Strategy for Ocean Exploration (2000)

DISCLAIMERS

The term "education" is used throughout the strategic plan, and serves to encompass formal education, informal education, and outreach for education.

All references to the Office of National Marine Sanctuaries and national marine sanctuaries serves to encompass the Papahānaumokuākea Marine National Monument. Although the monument is not a national marine sanctuary, it is co-managed by the Department of Commerce's National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries, Department of Interior's U.S. Fish and Wildlife Service, and the State of Hawai`i and falls within the scope of the NOAA Office of National Marine Sanctuaries Education Strategic Plan.

COVER PHOTO CREDITS (clockwise from top left): Claire Fackler; Farallones Marine Sanctuary Association; Aelfric Wolf; Claire Fackler; Seaberry Nachbar; Seaberry Nachbar; Claire Fackler







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hoto: Rocio Loz

MERITO students, like these on Anacapa Island, conduct stewardship projects to protect their sanctuaries

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hoto: Ben Brandes

TO THE SANCTUARY FAMILY, OUR PARTNERS, AND FRIENDS OF AMERICA'S UNDERWATER TREASURES:

The health of our ocean and Great Lakes, influenced by global as well as local forces, approaches a critical juncture. Human activities have been degrading the cherished environmental qualities – clean water, diverse and productive ecosystems and healthy foods – that our forefathers took for granted. We now understand that the ocean and Great Lakes cannot heal themselves endlessly, and their bounty is not limitless. The weight of scientific evidence supporting theories of climate change, sea level rise and ocean acidification changes the way we think about these vital resources and our ways of caring for the ocean and freshwater places we hold most dear.

The NOAA Office of National Marine Sanctuaries is charged with conserving and managing special marine protected areas deemed to be of irreplaceable national significance. Education plays a key role in fulfilling this mandate. Over the past decade, sanctuary education programs have been a powerful force in building stewardship for these unique places and in stimulating marine education, but the pressures on sanctuaries and the greater ocean continue to grow. Thankfully, so does the public's attention to ocean health issues. The Office of National Marine Sanctuaries must capitalize on this opportunity to provide our constituents and policy-makers at all levels with the information they need to make intelligent environmental decisions.

Across the sanctuary system there is a renewed focus on educational initiatives that will increase the public's ocean and climate literacy through new and innovative programming. In coordination and cooperation with numerous partners, we hope to inspire our nation's citizens to greater levels of personal responsibility for the marine and freshwater environments and greater stewardship of America's underwater treasures – national marine sanctuaries.

We have progressed from asking what is in the ocean and where it is, to include the larger questions of why things are changing, what we can do to help and how we can adapt to these changes. We now need to move forward, stronger than ever. In the following pages of this document you will find the Education Strategic Plan for the Office of National Marine Sanctuaries, which provides forward-thinking guidance for the next 10 years. It is designed to ensure education excellence in sanctuary programming, increase the public's level of ocean and climate literacy, and cultivate partnerships that will enhance ocean health and marine resource protection. By building upon our past achievements and developing strategic initiatives, we can work together for the benefit of our ocean planet. Thank you for your past support, and we look forward to working with you to implement this plan.

Sincerely

Daniel J. Basta, Director

NOAA Office of National Marine Sanctuaries

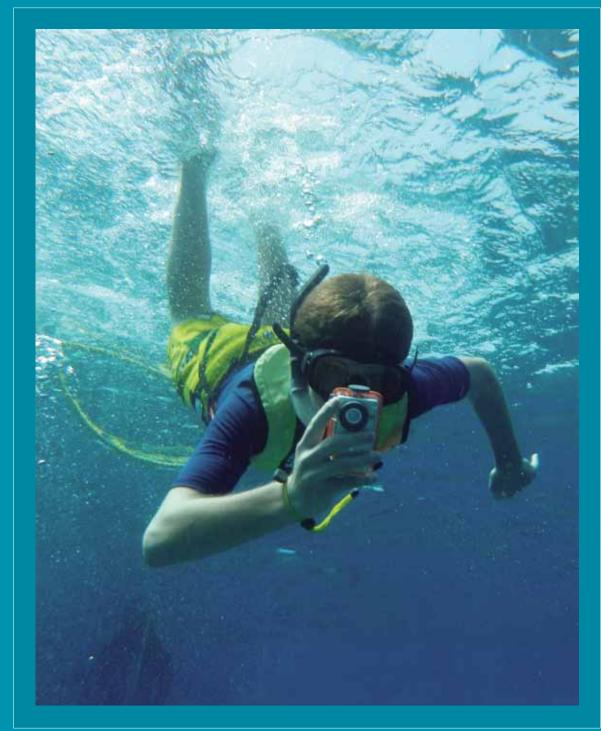


Photo: Nicolas Lemoine, France (Ocean for Life Program, Florida)

EXECUTIVE SUMMARY

We are at a unique point in history. The confluence of scientific evidence clearly demonstrates the ocean is in danger, and everyone from our political leaders to local communities needs to take action to reverse the tide and preserve the wonders of the ocean for future generations. If we are to effectively protect our resources, we must communicate the precarious state of the ocean to our citizens and help them understand their role in saving vital ocean places like national marine sanctuaries.

National marine sanctuaries are living classrooms where people can see, touch and learn about the nation's spectacular marine life and rich maritime history. We consistently strive to improve the manner in which we fulfill our mandated education mission to "enhance public awareness, understanding and appreciation of national marine sanctuaries and the system..." as well as to "emphasize the conservation goals and sustainable public uses of national marine sanctuaries and the system," contained in Section 309(C) of the National Marine Sanctuaries Act. To that end, our education and outreach programs are created to instill an ocean ethic that will touch the hearts and minds of our national public. As part of the National Oceanic and Atmospheric Administration (NOAA), the Office of National Marine Sanctuaries is working to enhance the NOAA education vision to create "an informed society that uses a comprehensive understanding of the role of the ocean, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions".

The Office of National Marine Sanctuaries National Education Strategic Plan is meant to be a visionary document which capitalizes on the current momentum for change and sets an overarching structure from which to create successful implementation plans on a site, regional and national level. Through the following goals and objectives, we hope to set the course for Office of National Marine Sanctuaries education initiatives toward achieving our vision of an ocean-literate public making informed environmental decisions. This plan was also written to build upon the past successes from the first Office of National Marine Sanctuaries Education Strategic Plan adopted in August 2000 and to focus our efforts in fulfillment of our mission to inspire ocean and climate literacy and conservation of the national marine sanctuaries.







Students participate in the Office of National Marine Sanctuaries "Ocean for Life" education program in summer 2009 (top). Students work together to monitor water quality in a local watershed (middle) .An innovative ROV building program introduces students to the fields of marine technology and engineering (bottom).

Outcome: A skilled team of education experts with a strong reputation for developing and delivering high-quality marine education materials and programs that effectively respond to ocean and Great Lakes issues in national marine sanctuaries.

OBJECTIVE 1

Build and maintain a dynamic education team.

Strategy 1.1.1: Maintain the Education Executive Council.

Strategy 1.1.2: Provide professional development opportunities for education staff at all levels (i.e. site, region, national).

Strategy 1.1.3: Create and encourage exchange opportunities to other sites, regions and headquarters within the Office of National Marine Sanctuaries and NOAA.

Strategy 1.1.4: Develop a career ladder identifying different levels for education staffing and provide a professional development plan to reach those levels.

OBJECTIVE 2

Successfully integrate sanctuary education into Office of National Marine Sanctuaries, National Ocean Service and NOAA planning, process and protocols.

Strategy 1.2.1: Standardize education Annual Operating Plan reporting across sites, regions and headquarters.

Strategy 1.2.2: Ensure representation at all internal sanctuary Executive Team, Leadership Team, cross-cutting, regional, facilities, policy, management plan development and strategic planning meetings, as well as other program-wide summits and initiatives.

Strategy 1.2.3: Work to ensure site, regional and national education implementation plans complement each other and are included in the management planning process.

Strategy 1.2.4: Ensure Office of National Marine Sanctuaries education representation in line office and NOAA-wide programs, committees and projects, as applicable.

Strategy 1.2.5: National, regional and site education plans will complement national, regional and sanctuary cross-cut programs.

NOAA DEFINITIONS OF EDUCATION AND OUTREACH

Formal Education

Learning within a structured education system in which children or adults are required to demonstrate proficiency.

Informal Education

Learning outside the established formal system that meets clearly defined objectives through organized education activities.

Outreach for Education

Activities that are designed to build awareness, develop relationships, promote education products and inspire educators, students and the public to pursue further learning opportunities.

OBJECTIVE 3

Maximize all funding opportunities.

Strategy 1.3.1: Pursue strategic government relations to support progressive national, regional and local funding possibilities.

Strategy 1.3.2: Pursue independent funding opportunities in partnership with supporting foundations (i.e. grants) for national, regional and site education programs, tools and products.

Strategy 1.3.3: Develop merchandising, program revenue and sponsorship mechanisms through external partnerships.

OBJECTIVE 4

Optimize use of emerging technologies with training opportunities for staff development.

Strategy 1.4.1: Education working group will assess technology needs and opportunities to ensure efficient and effective operation.

OBJECTIVE 5

Ensure education staff familiarity with, understanding of and involvement in the development and planning process for facilities, exhibits and signage programs.

Strategy 1.5.1: Integrate the Education Team into defined process for planning visitor's centers, exhibitry and signage.

OBJECTIVE 6

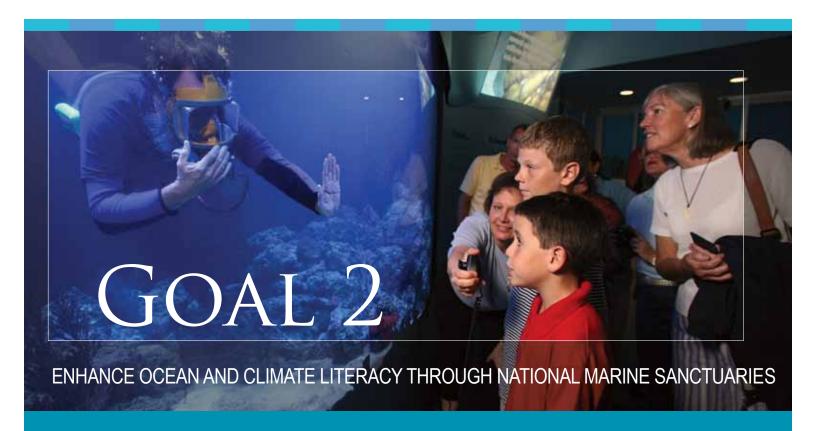
Support collaborative system-wide education programs based on the education team priorities.

Strategy 1.6.1: Ensure site and region involvement in system-wide education initiatives.

OBJECTIVE 7

Evaluate progress toward goal of achieving effective education management excellence.

Strategy 1.7.1: Utilize evaluation working group to develop methods and tools to evaluate progress.







Underwater interpretation helps educate aquarium visitors about the ocean and national marine sanctuaries (top). Students participate in hands-on environmental monitoring activities as part of the LiMPETS network (middle). Youth Education Summits provide an opportunity for older students to serve as mentors to children in younger grades (bottom).

Outcome: Increased number of ocean- and climate-literate people who are capable of making informed and responsible decisions that may impact the ocean and its resources.

OBJECTIVE 1

Assess existing level of integration of ocean and climate literacy principles in all Office of National Marine Sanctuaries programming.

Strategy 2.1.1: Identify the role of national marine sanctuary staff in ocean and climate literacy initiatives.

Strategy 2.1.2: Finalize overall plan for integrating ocean and climate literacy principles and concepts into Office of National Marine Sanctuaries education programs and projects

OBJECTIVE 2

Refine ocean and climate literacy messages and develop a suite of tools to ensure messages are integrated into all National Marine Sanctuary System programs.

Strategy 2.2.1: Develop appropriate tools (i.e. technology, curricula) and messages using key ocean and climate literacy concepts as a framework.

Strategy 2.2.2: Incorporate ocean and climate literacy concepts into all program areas through sanctuary science and resource protection examples.

Strategy 2.2.3: Work with partners to ensure messages are used in joint programs.

Strategy 2.2.4: Work with celebrities to increase the public prominence of ocean issues.

Strategy 2.2.5: Utilize exhibits, signage and kiosks as tools to further ocean and climate literacy messages.

Strategy 2.2.6: Utilize best practices guidebook for all education project tools.

OBJECTIVE 3

Work with formal and informal education groups to develop and enhance ocean and Great Lakes stewardship opportunities.

Strategy 2.3.1: Work with professional education organizations at the national, regional and site level to integrate ocean and climate principles through national marine sanctuaries into larger programs.

Strategy 2.3.2: Work with partners to contribute content and activities for curricular materials to increase likelihood

that sanctuary-specific ocean and climate literacy concepts may be included in future editions.

Strategy 2.3.3: Collaborate on ocean and climate literacy campaigns.

Strategy 2.3.4: Pursue multi-media opportunities to incorporate ocean and climate literacy messages.

OBJECTIVE 4

Work with the National Marine Sanctuary System network of volunteers to help ensure public knowledge and stewardship of ocean and Great Lakes resources.

Strategy 2.4.1: Formalize volunteer program at national and site levels.

OBJECTIVE 5

Adapt programs and products to suit evolving demographics, indigenous cultures and different user groups.

Strategy 2.5.1: Maintain and enhance multicultural programming at national, regional and site level, reflective of local community demographics.

OBJECTIVE 6

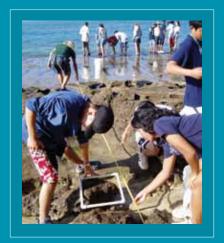
Evaluate goal to ensure ocean and climate literacy have been effectively integrated into all education strategies.

Strategy 2.6.1: Utilize evaluation working group to develop methods and tools to evaluate progress.

OCEAN AND CLIMATE LITERACY DRIVERS FOR SANCTUARY EDUCATION

The development of science literacy principles has gained the attention of the education and scientific communities to spread public awareness of our ocean and climate issues. The education team for the Office of National Marine Sanctuaries has been involved very closely with the development of these principles, and has adopted specific concepts that directly enhance sanctuary education efforts "to create ocean and climate literacy through national marine sanctuaries." The Oceans for Life, Essential Principles for Ocean Literacy, and the Essential Principles for Climate Literacy are documents aligned with national education standards to facilitate use of the principles in both formal and informal education settings. These areas of study are critical to NOAA's mission, forming the central focus of the agency's efforts in developing an environmentally literate society. For more information, please visit http://www.coexploration.org/oceanliteracy and http://climateliteracynow.org.







Workshops introduce teachers to water quality protocols and other technical materials (top). Sanctuary programs bring together students from diverse backgrounds to study a shared resource (middle). Students of all ages have opportunities to learn about national marine sanctuaries and the wonders of ocean biodiversity (bottom).

Outcome: Increased visibility of the National Marine Sanctuary System and enhanced programming through strategic and effective education partnerships.

OBJECTIVE 1

Expand education partnerships at the national, regional and local levels.

Strategy 3.1.1: Develop and implement plan to create and manage effective education partnerships.

Strategy 3.1.2: Streamline creation and approval process for Memorandums of Understanding and Memorandums of Agreement.

Strategy 3.1.3: Work across the sanctuary system and with cross-cut (conservation science, maritime heritage, resource protection) teams to expand existing partnerships to include education and outreach.

OBJECTIVE 2

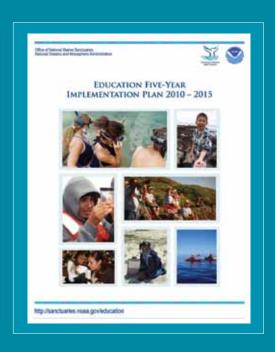
Evaluate education partnership program effectiveness.

Strategy 3.2.1: Use established baseline to assess strategic goals over time.

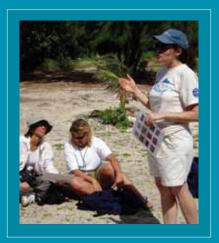
Strategy 3.2.2: Provide means for partners to evaluate education programs.

STRATEGY FOR IMPLEMENTATION

The Education Strategic Plan is designed to ensure education excellence in sanctuary programming, increase ocean and climate literacy in the public, and cultivate the partnerships required to enhance the impact of sanctuary messages. The goals, outcomes, and objectives of the Education Strategic Plan provide the framework, and will guide the direction of sanctuary education through 2020. The Implementation Plan is a companion document to ensure our mission to inspire ocean and climate literacy and conservation through national marine sanctuaries is fully achieved. In addition to outlining the goals, objectives, and strategies, the Implementation Plan highlights the individual tasks required to fully execute the Education Strategic Plan 2010-2020. The Implementation Plan also details the priorities of the NOAA Office of National Marine Sanctuaries Education Team and the actions they will take in the next five years to address opportunities and challenges for achieving the goals established in the Education Strategic Plan 2010-2020.









Students have access to scientific equipment on board NOAA research vessels (top). Through professional development opportunities, teachers can bring the ocean to their classrooms (middle). Charismatic humpback whales and other sanctuary species motivate the public to protect the ocean realm (bottom).

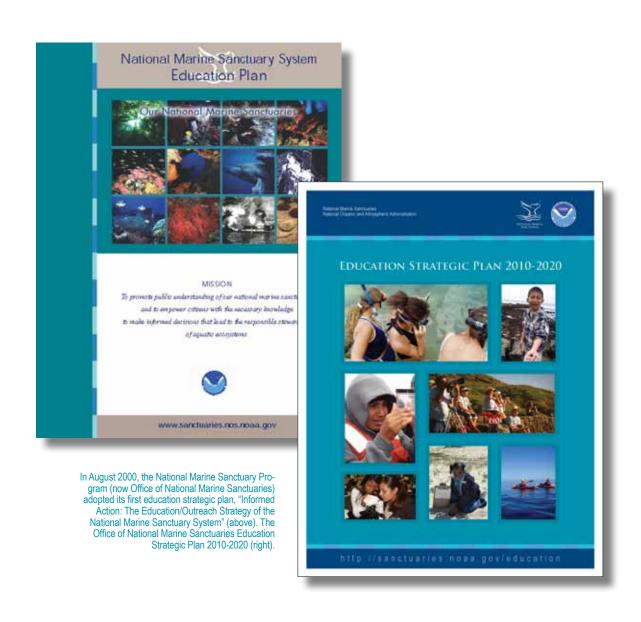
In August 2000, the National Marine Sanctuary Program (now Office of National Marine Sanctuaries) adopted its first education strategic plan, "Informed Action: The Education/ Outreach Strategy of the National Marine Sanctuary System." Within six years of adopting that plan, the sanctuary program achieved a majority of the defined goals and accomplished additional goals not included in the original document. The resulting formation of strategic partnerships within the National Marine Sanctuary System, as well as external partners on the local, regional and national levels, has multiplied the capabilities and audience reach of the sanctuary system and assisted our progress in fulfilling our mission to inform and educate the public as mandated by the National Marine Sanctuaries Act. For example, the Office of National Marine Sanctuaries Education Team currently utilizes ocean literacy standards formulated by a broad team of educators and scientists, within and outside of the sanctuary system, in all curriculum and education program development. These programs and curricula are designed to provide the formal education community with the tools to effectively teach about the ocean in America's schools.

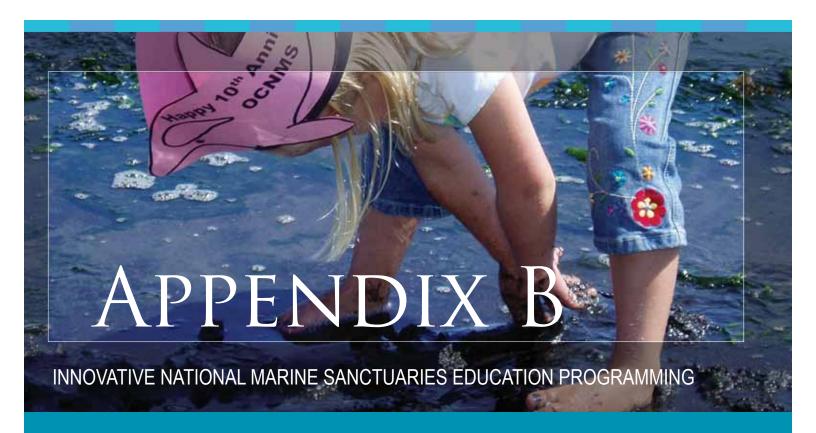
Due to increasing recognition of the need to strengthen ocean science and education, NOAA was designated in the America COMPETES Act of 2007 as a lead agency for ocean education. The 2007 legislation supplies NOAA with a broad mandate to support educational activities at all levels to increase public awareness and understanding of ocean science and stewardship. This language provides NOAA much-needed authority to enhance and integrate activities in education, communications, outreach, extension and training, further complementing the existing educational mandates for the sanctuary system contained in the National Marine Sanctuaries Act.

The America COMPETES Act of 2007 also directed NOAA to create a 20-year strategic education plan in partnership with ocean and atmospheric science and education experts, as well as interested members of the public, to be evaluated and updated every five years. The NOAA Office of Education developed an Education Strategic Plan with

the overall vision of "an informed society that uses a comprehensive understanding of the role of the oceans, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions," and the mission "to advance environmental literacy and promote a diverse workforce in ocean, coastal, Great Lakes, weather, and climate sciences encouraging stewardship and increasing informed decision-making for the Nation."

Over the last four years, the Office of National Marine Sanctuaries Education Team and Education Executive Council have undertaken an extensive planning process to develop a new Office of National Marine Sanctuaries Education Strategic Plan for 2010-2020. This new Education Strategic Plan aligns with the NOAA Office of Education's overall vision and mission and fulfills many of the same objectives. The extensive planning process included a strengths, weaknesses, opportunities and threats analysis, as well as a review of the sanctuary system portfolio of educational programming and outreach initiatives to determine the means to maintain and improve successful programs, identify causes for underperforming programs, and evaluate the potential capabilities of new technologies. The following goals and objectives of the Office of National Marine Sanctuaries 2010-2020 Education Strategic Plan are the result of these processes.









Ocean festivals and other outreach events engage community members in learning about and appreciating the ocean (top). Educators and students get their hands wet and minds challenged during ROV programs and competitions (middle). Sanctuaries offer visitors an access point to explore and learn about the ocean (bottom).

The NOAA Office of National Marine Sanctuaries wants to contribute to the number of ocean-literate people who are capable of making informed and responsible decisions that may positively impact the ocean and its resources. There are several approaches to increasing ocean and climate literacy through formal and informal education, and outreach. They include: curricular materials and lesson plans; professional development for educators; field studies; multicultural programs; and high-tech learning.

CURRICULAR MATERIALS AND LESSON PLANS

The Office of National Marine Sanctuaries aims to provide teachers, students and other target audiences with educational resources to support ocean and climate literacy in America's classrooms. For example, the Navigating Change Teacher's Guide is a 4th-5th grade standards-aligned curriculum focused on the Northwestern Hawaiian Islands that gets students to understand human impacts to the Hawaiian Archipelago and what we can do to restore our natural environment. Staff have also worked with the National Geographic Society to develop 12 lesson plans with complementary short videos that highlight cutting-edge research, environmental issues facing the ocean today, and our national marine sanctuaries. Sanctuary content is also provided to various partners, such as the Lawrence Hall of Science, California Education and the Environment Initiative, Immersion Learning, and the JASON Foundation for Education, for inclusion in standards-based curricula.

PROFESSIONAL DEVELOPMENT FOR EDUCATORS

Providing educators with the content knowledge and the training to teach ocean science through national marine sanctuaries is an element of what the Office of National Marine Sanctuaries Education Team does around the country on a local, regional and national level. The Long-term Monitoring Program and Experiential Training for Students, also known as LiMPETS, provides a unique opportunity for teachers to participate in professional development to gain the necessary skills and confidence to engage their students in rocky intertidal and sandy beach monitoring along the California coast. This program now involves more than 3,500 students that collect long-term data in these important habitats for use by resource managers to track the ecosystem's health. In another example,

teachers from around the country have been offered an opportunity to learn about coral reef ecosystems, participate in a SCUBA diving field experience, and conduct scientific reef fish surveys at Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico. Office of National Marine Sanctuaries staff also offer "Dive into Education," a two-day workshop for K-12 educators to learn about marine technology, oceanography, life sciences, ecosystems and other topics.

FIELD STUDIES

First-hand experiences in the watershed or marine environment provide teachers and students an opportunity to directly connect with the environment in a way that can have a lasting impact. The education team conducts a wide variety of field studies that inspire ocean and climate literacy and conservation through national marine sanctuaries, such as the Ocean for Life program that brings together students of diverse cultures and backgrounds to discover marine science, conservation, and how the ocean connects us all. At Thunder Bay National Marine Sanctuary, tall ship education programs provide students with opportunities to experience the Great Lakes firsthand and explore history and archaeology above and below the water. In the Hawaiian Islands, NOAA research ships become floating classrooms for high school students to spend a day at sea experiencing the life of a marine scientist, encouraging them to pursue science-related education and careers. Coral Reef Classroom, hosted by Florida Keys National Marine Sanctuary, teaches basic coral reef biology and concepts of habitat interdependence by engaging students in activities such as water quality monitoring, data collection and evaluation. Another example is the National Marine Sanctuaries Field Studies Program, in partnership with the National Geographic Society, which immerses students in the ocean through snorkeling and kayaking, emphasizing sense of place, conservation and stewardship, and interconnectedness through hands-on activities.

MULTICULTURAL PROGRAMS

The Office of National Marine Sanctuaries has been reaching out to multicultural audiences to provide them with the tools to actively contribute to the protection of our special marine resources. The MERITO (Multicultural Education for Resource Issues Threatening Oceans) program specifically reaches out to Spanish-speaking residents in California to provide the tools to strengthen their academic skills and confidence, particularly in the area of marine science and ocean conservation. Expanding from the Monterey Bay region to Channel Islands National Marine Sanctuary, the MERITO program is reaching large numbers of Hispanic community members through programs like the Watershed Academy, adult education classes, and hands-on field work. Other education and outreach initiatives, like the Ocean for Life program, aim to enhance the contribution of the Office of National Marine Sanctuaries to build and engage a conscious and culturally inclusive constituency for ocean protection nationwide and internationally.

HIGH-TECH LEARNING

National marine sanctuaries are living classrooms that can be explored in person through field studies and other immersive programs, or they can be experienced virtually through online resources like interactive digital labs and games. OceanLive is one way we bring the national marine sanctuaries and the ocean realm to the world. This marine science portal Web site blends real-time interactive video from research expeditions, live video feeds from sanctuaries, and educational lessons about our marine environment, enabling all Americans to experience the wonder of our water planet. The NOAA Ocean Data Education Project uses real scientific data that engages teachers and students to explore dynamic Earth processes and understand the impact of environmental events on a regional or global scale. Sanctuary education programming also provides opportunities that excite students with marine technology and maritime heritage by engaging them in building remotely operated vehicles with PVC pipe and other materials.

Another way to virtually explore our national marine sanctuaries is to visit http://marinelife.noaa.gov to discover an online field guide providing photos, video and important biological information for hundreds of species from America's underwater treasures. Or people can visit the National Marine Sanctuaries Media Library to find thousands of high-resolution photos and videos available to download and share with friends and family or for use in publications, science fair projects and more. High-tech learning doesn't stop there. The Office of National Marine Sanctuaries produces thought-provoking videos with compelling imagery to capture people's attention and imagination with an aim to inspire behavior change. The Thank-You Ocean campaign is one example of using film to inspire change and action. The campaign has reached millions in California with messages that highlight the connection between humans and the ocean and provide suggestions on how people can make a difference as an ocean-literate citizen.

To learn more about how the Office of National Marine Sanctuaries strives to inspire ocean and climate literacy and conservation through national marine sanctuaries, visit http://sanctuaries.noaa.gov/education.

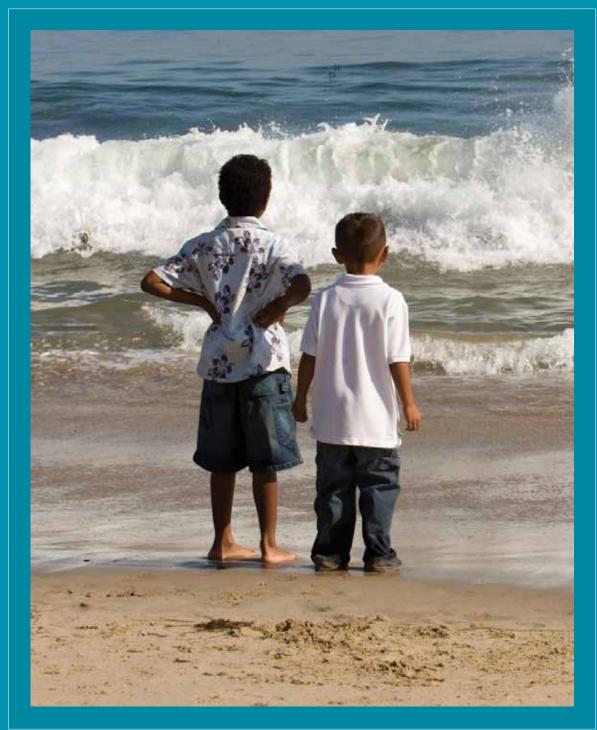


Photo: @iStockphoto.com/digitalskillet



